

IN THE CLAIMS:

Please cancel claims 2, 13-14, 19-20, 25-26, 29, 36, 42-43, 50, and 54 without prejudice or disclaimer and amend the remaining claims as follows:

1. (currently amended) An apparatus comprising:
a data requestor which has the ability to specify demand data that it wants and to receive reply data including the demand data and optionally also unspecified prefetch data;
a communication link; and
a data source coupled to the data requestor over the communication link and which has the ability to determine which prefetch data to send to the data requestor with the demand data, wherein
the data requestor comprises a driver; and
the data source comprises a storage system.
2. (canceled).
3. (currently amended) The apparatus of claim 2 1 wherein the storage system comprises:
a rotating storage drive.
4. (original) The apparatus of claim 3 wherein:
the data requestor further comprises a data destination buffer; and
the data source further has the ability to write the prefetch data and the demand data into the data destination buffer, and the ability to provide data identifiers which enable the data requestor to selectively retrieve the demand data from the data destination buffer.
5. (original) The apparatus of claim 4 wherein the apparatus comprises a computer.

6. (original) The apparatus of claim 1 wherein the communication link comprises a local area network.
7. (original) The apparatus of claim 1 wherein the communication link comprises a wide area network.
8. (original) The apparatus of claim 1 wherein the communication link comprises the internet.
9. (original) The apparatus of claim 1 wherein the communication link comprises a host disk controller.
10. (original) The apparatus of claim 1 wherein the prefetch data are stored contiguously with the demand data in a storage device of the data source.
11. (currently amended) ~~The~~ An apparatus of claim 1 comprising:
a data requestor which has the ability to specify demand data that it wants and to receive reply data including the demand data and optionally also unspecified prefetch data;
a communication link; and
a data source coupled to the data requestor over the communication link and which has the ability to determine which prefetch data to send to the data requestor with the demand data,
wherein the data requestor specifies null demand data.
12. (canceled).
13. (canceled)

14. (canceled).

15. (previously presented) A storage system for responding to a demand data request from a data requestor, the storage system comprising:

a controller for performing logic operations of the storage system;

a storage drive coupled to the controller;

a storage cache coupled to the controller; and

at least one prefetch algorithm executable by the controller to determine which prefetch data to include with demand data in a response to the demand data request, and to retrieve the prefetch data and the demand data from at least one of the storage drive and the storage cache, and to provide to the data requestor reply data including the prefetch data and the demand data,

wherein the demand data request specifies null demand data.

16. (canceled).

17. (previously presented) A storage system for responding to a demand data request from a data requestor, the storage system comprising:

a controller for performing logic operations of the storage system;

a storage drive coupled to the controller;

a storage cache coupled to the controller; and

at least one prefetch algorithm executable by the controller to determine which prefetch data to include with demand data in a response to the demand data request, and to retrieve the prefetch data and the demand data from at least one of the storage drive and the storage cache, and to provide to the data requestor reply data including the prefetch data and the demand data,

wherein the prefetch data are contiguous with the demand data on the storage drive, and

wherein the prefetch data include first prefetch data which are stored prior to the demand data and second prefetch data which are stored after the demand data on the storage drive.

18. (previously presented) The storage system of claim 17 wherein the reply data further include information enabling the data requestor to select the demand data from the reply data.

19. (canceled).

20. (canceled).

21. (currently amended) ~~The A storage driver of claim 20 further~~ for execution by a data requestor to retrieve demand data from a storage system, the storage driver comprising:

means for identifying the demand data to the storage system;

means for receiving reply data from the storage system, in which the reply data includes the demand data and potentially also prefetch data which was not identified by the storage driver;

means for selectively retrieving the demand data out of the reply data;

means for selectively retrieving the prefetch data out of the reply data;

means for caching the prefetch data; and

means for receiving an offset into the reply data at which the demand data is located.

22. (original) The storage driver of claim 21 further comprising:

means for receiving an indication of how much reply data has been received from the storage system.

23. (original) The storage driver of claim 22 wherein the storage system comprises a disk drive and the storage driver comprises disk drive driver software executable by a microprocessor of a computer system which is connected to the disk drive.

24. (currently amended) ~~The A~~ storage driver of claim 19 for execution by a data requestor to retrieve demand data from a storage system, the storage driver comprising:
 means for identifying the demand data to the storage system;
 means for receiving reply data from the storage system, in which the reply data includes the demand data and potentially also prefetch data which was not identified by the storage driver; and
 means for selectively retrieving the demand data out of the reply data,
 wherein the means for selectively retrieving the demand data is adapted to retrieve the demand data from between first prefetch data stored below the demand data and second prefetch data stored above the demand data in the means for receiving reply data.
25. (canceled).
26. (canceled).
27. (currently amended) ~~The A~~ method of claim 26 comprising:
 a driver requesting specified demand data from a storage system;
 the storage system determining which prefetch data to include with the demand data; and
 the driver receiving from the storage system,
 the demand data, and
 the prefetch data,
 wherein the storage system determines which prefetch data to include, based at least in part on a state of the storage system,
 and wherein the state comprises whether the prefetch data is already in a storage cache in the storage system.
28. (original) The method of claim 27 wherein the state further comprises whether the prefetch data can be retrieved from a storage drive with an acceptable performance penalty.

29. (canceled).
30. (currently amended) ~~The~~ A method of claim 29 comprising:
a driver requesting specified demand data from a storage system;
the storage system determining which prefetch data to include with the demand
data; and
the driver receiving from the storage system,
the demand data, and
the prefetch data; and
the driver receiving from the storage system information identifying where,
within reply data that includes the demand data and the prefetch data, the demand data is
located,
wherein the storage system provides, in the information, a demand data offset and
a reply length.
31. (currently amended) The method of claim 25 30 wherein the driver and the
storage system are connected by a communication link.
32. (original) The method of claim 31 wherein the communication link comprises the
internet.
33. (original) The method of claim 32 wherein the communication link comprises a
local area network.
34. (original) The method of claim 31 wherein the method is performed by a
computer system, the driver is executed by a microprocessor of the computer system, the
storage system comprises a disk drive system of the computer system, and the
communication link comprises a host disk controller interface to the storage system.

35. (currently amended) A method of operating a storage device driver in a processor-based system which includes a storage system, the method comprising:
- receiving a first request for demand data;
 - sending a second request for the demand data to the storage system;
 - receiving reply data from the storage system;
 - receiving identifying data from the storage system; ~~and~~
 - using the identifying data to selectively retrieve the demand data from the reply data; and
 - using an offset indicator in the identifying data to identify a beginning location of the demand data in a buffer in which the reply data were received.
36. (canceled).
37. (currently amended) The method of claim ~~36~~ 35 further comprising:
- using a reply length indicator in the identifying data to determine how much prefetch data were received from the storage system in the reply data with the demand data.
38. (original) The method of claim 37 further comprising:
- caching the prefetch data.
39. (original) The method of claim 35 wherein the reply data comprises prefetch data and the demand data.
40. (original) The method of claim 39 wherein the demand data and the prefetch data are from contiguous areas of storage.
41. (original) The method of claim 39 wherein the demand data and the prefetch data are from discontinuous areas of storage.
42. (canceled).

43. (canceled).

44. (currently amended) The A method of ~~claim 43~~ operating a storage system in conjunction with a data requestor which does not specify how much prefetch data the storage system should return with demand data requested by the data requestor, the method comprising:

sending the demand data to the data requestor;

determining what prefetch data to include with the demand data;

sending the prefetch data to the data requestor; and

providing identifying data to enable the data requestor to discern the demand data from the prefetch data,

wherein the determining what prefetch data to include comprises basing the determination at least in part on a state of the storage system, and

wherein the state comprises whether the prefetch data are cached.

45. (original) The method of claim 44 wherein the state further comprises whether the demand data are cached.

46. (original) The method of claim 45 wherein the state comprises whether the prefetch data can be retrieved from a storage drive before the demand data can.

47. (original) The method of claim 45 wherein the state comprises whether the prefetch data can be efficiently retrieved following the demand data.

48. (original) The method of claim 47 wherein the state comprises whether the prefetch data will cause a head seek.

49. (currently amended) An article of manufacture comprising:
a machine-accessible medium including data that, when accessed by a machine,
cause the machine to perform the method of claim 35, and
using a reply length indicator in the identifying data to determine how much
prefetch data were received from the storage system in the reply data with the demand
data.
50. (canceled).
51. (original) The article of manufacture of claim 49 wherein the machine-accessible
medium comprises a recordable storage medium.
52. (original) The article of manufacture of claim 49 wherein the machine-accessible
medium comprises a carrier wave.
53. (currently amended) An article of manufacture comprising:
a machine-accessible medium including data that, when accessed by a machine,
cause the machine to perform the method of claim 42, and
wherein the determining what prefetch data to include comprises:
basing the determination at least in part on a state of the storage system,
wherein the state comprises whether the prefetch data are cached,
and wherein the state further comprises whether the demand data are
cached.
54. (canceled).
55. (original) The article of manufacture of claim 53 wherein the machine-accessible
medium comprises a recordable storage medium.
56. (original) The article of manufacture of claim 53 wherein the machine-accessible
medium comprises a carrier wave.